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NEW STATE RECORDS OF *CAREX* SECT. *ACROCYSTIS* (CYPERACEAE) FROM THE EASTERN USA

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ABSTRACT

Cited voucher specimens document *Carex albicans* var. *emmonsii* new to Mississippi, *C. floridana* new to New Jersey and Tennessee, *C. reznicekii* new to Florida, *C. tonsa* var. *rugosperma* new to Tennessee, and *C. tonsa* var. *tonsa* new to Kentucky and Tennessee.

Members of *Carex* sect. *Acrocystis* Dumort. (Cyperaceae) are serious identification challenges in the North American Flora. Several aspects of these plants make them difficult to identify, particularly the relatively few interspecific diagnostic characters and the often great intraspecific variability. In addition, members of sect. *Acrocystis* are diminutive, with *C. reznicekii* Werier, *C. tonsa* (Fernald) E.P. Bicknell, and *C. umbellata* Willd. among the smallest of all *Carex* species in temperate eastern North America. Also, most of the species of sect. *Acrocystis* mature and shed the diagnostic perigynia quickly. Yet another identification challenge is due to frequent hybridization between the species, though individuals of the species usually far outnumber hybrids at sites where hybrids do occur (pers. observations by Naczi, Poindexter, and Werier).

Complicating matters, taxonomy within *Carex* sect. *Acrocystis* is incompletely resolved. For example, authors only recently have described multiple new species from North America, *C. reznicekii* (Werier 2006), *C. austrodeflexa* P.D. McMillan, Sorrie, & van Eerden (Sorrie et al. 2011), and *C. xerophila* Janeway & Zika (Zika et al. 2014), and have proposed a new combination and status for *C. austrolucorum* (Rettig) D.B. Poind. & Naczi (Poindexter & Naczi 2014).

Largely because of their identification challenges, geographic distributions of members of *Carex* sect. *Acrocystis* are incompletely known. In order to increase knowledge of the distributions of species in the section, we report significant collections of five taxa, *C. albicans* var. *emmonsii* (Torr.) Rettig, *C. floridana* Schwein., *C. reznicekii*, *C. tonsa* var. *rugosperma* (Mack.) Crins, and *C. tonsa* var. *tonsa*. These collections are from five states in the eastern USA. Apparently, all cited specimens are new state records since records for these states are lacking from the most recent comprehensive treatment of sect. *Acrocystis* for North America (Crins & Rettig 2002), from the PLANTS database (USDA 2015), from the Atlas of Florida Vascular Plants (Wunderlin & Hansen 2015), from the Database of Tennessee Vascular Plants (University of Tennessee Herbarium 2015), and from the protologue of *C. reznicekii* (Werier 2006).

Taxonomy and nomenclature follow Crins and Rettig (2002).

Carex albicans var. emmonsii

Carex albicans var. *emmonsii* grows in wet-mesic and mesic, deciduous and deciduous-pine forests and their edges. Its known geographic range had been Nova Scotia west to Ontario, south to Florida, Tennessee, and Arkansas (Crins & Rettig 2002). The specimens cited below extend the range into central Mississippi.

Mississippi. Lauderdale Co.: John C. Stennis Naval Auxiliary Air Station, 24 Apr 2009, *Bryson 23080 & Copeland* (NY). Lowndes Co.: Columbus, Propst Park, N of route 182, W of Luxapallila Creek, 10 Apr 2010, *Bryson 23327 & Bryson* (NY). Madison Co.: Flora, 2 Apr 1955, *Cooley et al. 3364* (FLAS). Oktibbeha Co.: Sturgis, Diane Jackson Memorial Park, 3 Apr 2010, *Bryson 23302 & Bryson* (NY), *Bryson 23303 & Bryson* (NY). Winston Co.: ca. 7 air mi WNW of center of Louisville, Tombigbee National Forest, 20 Apr 2010, *Bryson 23146 et al.* (NY).

Carex floridana

Carex floridana grows in dry-mesic sands and very sandy soils in open woods and their edges. This species had been known from Virginia south and west in coastal states to Florida and Texas, and inland in Arkansas and Missouri (Crins & Rettig 2002; USDA 2015; Virginia Botanical Associates 2015). The specimens cited from New Jersey represent a northeastward range extension of about 170 km (105 mi) from southeastern Virginia to southernmost New Jersey. The Tennessee population represents a slight northward extension from an occurrence in northern Mississippi (USDA 2015).

New Jersey. Cape May Co.: Wildwood Beach, 8 May 1898, *Saunders s.n.* (PH); West Cold Spring, Higbee's Beach, 28 May 1911, *Brown s.n.* (PH); N of Bennett, 7 May 1932, *Witte s.n.* (PH). **Tennessee**. Fayette Co. 0.53 air mi SSW of La Grange, 300 feet W of Yager Rd., 19 Apr 2013, *Estes 2013-26C* (APSC, NCU); from population represented by *Estes 2013-26C*, grown in greenhouse and harvested for chromosome analysis, 31 Jan 2014, *Poindexter 14-19* (NCU).

Carex reznicekii

Carex reznicekii grows in mesic deciduous or deciduous-pine forests. Its previously known range extended from Rhode Island west to southern New York, southern Ohio, and southern Missouri, south to southern Georgia, Alabama, Mississippi, and northern Arkansas (Werier 2006; USDA 2015). The record cited below is a slight southward range extension to northernmost Florida. This extension is not surprising because *C. reznicekii* had been known from southernmost Alabama (Werier 2006).

Florida. Holmes Co.: ca. 0.8 air mi N of junction route 2A and route 185 at Sweet Gum Head, ca. 0.1 mi S of Alabama state line, on McDuffie Road, Gully Branch, 8 Apr 1993, *Orzell & Bridges 21397* (USF).

Carex tonsa var. rugosperma

Carex tonsa var. *rugosperma* inhabits dry-mesic, somewhat nutrient-poor and barren, open forests, forest openings, and forest edges, often in rocky or sandy ground. It had been known to occur from Nova Scotia west to Saskatchewan, south to New Jersey, Ohio, and Illinois, and south in the Appalachian Mountains to Georgia (Crins & Rettig 2002). The record cited below is a westward range extension to southeastern Tennessee. This extension is not surprising, given the previous knowledge of *C. tonsa* var. *rugosperma* in North Carolina, South Carolina, and Georgia (Crins & Rettig 2002).

Tennessee. Franklin Co.: Sewanee, University of the South, ca. 0.3 mi W of Sister Christabel Road, in the Domain, 17 May 2013, *Poindexter 13-123 & Estes* (NCU).

Carex tonsa var. tonsa

Carex tonsa var *tonsa* grows in dry-mesic, somewhat nutrient-poor and barren, open forests, forest openings, forest edges, and stabilized dunes, often in sandy ground. The previously known distribution was Newfoundland west to Labrador, Saskatchewan, and British Columbia, south to Georgia and Missouri (Crins & Rettig 2002; USDA 2015). The specimens cited below fill in gaps for this range for Kentucky and Tennessee.

Kentucky. Lewis Co.: above Hymes Knob Prairie, 28 Jun 1989, *Cusick 28274* (NY). McCreary Co.: 6.1 mi SW of community of Hill Top, 24 Apr 2010, *Naczi 12864* (NY). Madison Co.: Berea, Berea College Forest at Radio Tower Hill, 29 Apr 2011, *Poindexter 11-44 & Thompson* (BOON, NY). Rockcastle Co.: W of Morrill, along Burnt Ridge Road, 29 Apr 2011, *Poindexter 11-50 & Thompson* (BOON, NY). **Tennessee**. Blount Co.: Great Smoky Mountains National Park, Scotts Gap Trail, 4 May 1985, *McNeilus s.n.* (TENN); Great Smoky Mountains National Park, above Lake Chilhowee Watershed, 3 May 2001, *Busemeyer 536 et al.* (TENN). Carter Co.: W of community of Roan Mountain, along route 19E, 12 Apr 2011, *Poindexter 11-09* (BOON, NY). Cocke Co.: Cosby, along Caney Creek Road, 28 Apr 2011, *Poindexter 11-39* (BOON, NY). Johnson Co.: Shady Valley, along route 34 near county line, 26 Apr 2011, *Poindexter 11-34* (BOON, NY). Polk Co.: Ocoee River Gorge (grown in greenhouse and harvested for chromosome analysis from live material originally collected by D. Estes), 17 Jan 2014, *Poindexter 14-05* (NCU).

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